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       (FILE 'HOME' ENTERED AT 10:41:30 ON 28 APR 2006)
       FILE 'CA' ENTERED AT 10:41:48 ON 28 APR 2006
L1 106924 S TEMPERATURE(2A)(CONCENTRAT? OR COMPOSITION)
L2    3452 S L1 (6A)(CURVE OR PLOT? OR DIAGRAM? OR DISPLAY? OR GRAPH? OR
           CONTOUR?)
L3 397724 S TEMPERATURE(4A)(FUNCTION OR BASED OR DEPEND?)
L4 336125 S (CONCENTRAT? OR COMPOSITION)(4A)(FUNCTION OR BASED OR DEPEND?)
L5  32557 S L3 AND L4
L6  14370 S L3-4 (6A)(CURVE OR PLOT? OR DIAGRAM? OR DISPLAY? OR GRAPH? OR
           CONTOUR?)
L7     998 S L5 AND L6
L8      48 S L7 AND(EMULS? OR MICROEMULS? OR SUSPENS? OR MICELL?)
L9   93061 S (VARIABLE OR PARAMETER OR PROPERTY OR CHARACTERISTIC)(6A)(CURVE
           OR PLOT? OR DIAGRAM? OR DISPLAY? OR GRAPH? OR CONTOUR?)
L10    417 S L5 AND L9
L11    214 S L10 AND(EMULS? OR MICROEMULS? OR SUSPENS? OR MICELL? OR LIQUID OR
           SOLVENT OR SOLUTION OR FLUID)
L12   1757 S L2 AND(EMULS? OR MICROEMULS? OR SUSPENS? OR MICELL? OR LIQUID OR
           SOLVENT OR SOLUTION OR FLUID)
L13     36 S (AUTOMAT? OR COMPUTER OR PROCESSOR OR MICROPROCESS? OR
           MICROCOMPUTER)AND L12
L14     43 S L12 AND(3D OR (3 OR THREE OR MULTI OR MULTIPLE)(2W)(D OR
           DIMENSION?))
L15    612 S L5-6 AND(3D OR (3 OR THREE OR MULTI OR MULTIPLE)(2W)(D OR
           DIMENSION?))
L16     11 S (AUTOMAT? OR COMPUTER OR PROCESSOR OR MICROPROCESS? OR
           MICROCOMPUTER)AND L15
L17     18 S (AUTOMAT? OR COMPUTER OR PROCESSOR OR MICROPROCESS? OR
           MICROCOMPUTER)AND L10
L18      9 S (AUTOMAT? OR COMPUTER OR PROCESSOR OR MICROPROCESS? OR
           MICROCOMPUTER)AND L7
L19     51 S L11 AND(LIGHT(1A)SCATTER? OR TURBID? OR NEPHALOM? OR NEPHELEM? OR
           NEPHELO? OR NEPHLOM? OR NEPHOL? OR PH OR VISCOS? OR CONDUCTIV?)
L20    201 S L8,L13-14,L16-19
L21    147 S L20 NOT PY>1997
L22    126 S L21 NOT(SOLID SOLUTION OR DUST)
L23    114 S L22 NOT ALLOY
L24    103 S L23 NOT(SWELLING OR NMR OR MELT)
L25      3 S L23 NOT L24 AND(TURBIDITY OR LIGHT SCATTER?)
L26    101 S L24 NOT NUCLEAR
L27    100 S L26 NOT FLUE
L28    103 S L25,L27

=> d bib,ab 128 1-103
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L28   ANSWER 4 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN   126:347897   CA
TI   Critical properties and activation energy of nitrobenzene in n-alkanes
       solutions
AU   Dega-Dalkowska, A.
CS   Institute Physics, A. Mickiewicz University, Poznan, 60780, Pol.
SO   Phase Transitions (1997), 60(3), 143-153

AB   The **viscosity** coeff. η of nitrobenzene in n-octane and n-nonane **solns**. was measured as a **function** of **concn**. and **temp**. The coexistence **curve**, crit. exponent β, and crit. **parameters** of these **solns**. were detd. From exptl. η vs. T-1 curves, and by applying the method of tangents, the activation energy of **viscosity** E is calcd. as a **function** of **concn**. and **temp**. The obsd. max. in the curves of E vs. the solute concn. (decreasing with increasing distance from the phase sepn. temp.) and particularly well marked in the crit. region, is related to changes in the microstructure of the **liq**. appearing because of fluctuations in the crit. region. The character of the **temp**. and **concn**. **dependence** of E was studied for nitrobenzene **solns**. in a few n-alkanes.

L28   ANSWER 7 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN   126:104692   CA
TI   Shear Effects on the Phase Diagrams of **Solutions** of Highly Incompatible Polymers in a Common **Solvent**. 1. Equilibrium Behavior and Rheological Properties
AU   Krause, Cora; Wolf, B. A.
CS   Institut fuer Physikalische Chemie, Johannes Gutenberg-Universitaet, Mainz, D-55099, Germany
SO   Macromolecules (1997), 30(4), 885-889
AB   Phase diagrams (cloud points, tie lines, crit. compns.) and **viscosities** of homogeneous **solns**. were detd. at 20-100° for the ternary system cyclohexanone /polystyrene/ poly(Bu methacrylate) [CHO/PS/PBMA] to study shear influences. An only moderate increase of the two-phase region obsd. upon heating (LCST [lower crit. **soln**. temp.] behavior) indicate a small effect of heat upon mixing. Tie lines which are nearly parallel to the PS/PBMA edge of the Gibbs phase triangle indicate comparable **solvent** quality of CHO for both polymers. The quant. math. description of the equil. behavior-required for a theor. treatment of shear influences-was performed on the basis of the Flory-Huggins equation by **compn**. and **temp**. **dependent** binary (integral) interaction parameters gij. The present approach avoids the use of chem. potentials and minimizes the Gibbs energy of mixing directly. Literature data for gCHO/PS and gCHO/PBMA were used; gPS/PBMA was adjusted to reproduce the measured phase diagram of the ternary system. Calcd. and measured phase diagrams match well. The rheol. results were used to establish a math. expression describing the **compn**. and **temp**. **dependence** of the **soln**. **viscosities**; such an equation is required for the theor. treatment of shear influences on the phase diagram.

L28   ANSWER 10 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN   124:127612   CA
TI   Linear and non-linear rheological behavior of salt-free aqueous CTAB solutions
AU   Cappelaere, E.; Cressely, R.; Decruppe, J. P.
CS   Metz, 57070, Fr.
SO   Colloids and Surfaces, A: Physicochemical and Engineering Aspects (1995), 104(2/3), 353-74
AB   We report here exptl. results of the linear and nonlinear rheol. properties of concd. aq. solns. of cetyltrimethylammonium bromide (CTAB) without addn. of salt. The range of concn. studied in this work is just

before a static liq. cryst. phase is obtained. The flow curves show
three different and well characterized domains of evolution. In the
first part of the curve, the Newtonian part, we obtain as a **function** of
concn. a very unusual power law exponent of nearly 12 for the zero shear
viscosity $\eta 0$ and 62 for a terminal relaxation time. The second region
is characterized by a plateau value .vsigma.c of the shear stress
ranging from .ovrhdot.γ1c to .ovrhdot.γ = .ovrhdot.γ2c. This domain
corresponds to the transition from an isotropic to a nematic state with
an intermediate biphasic system. The evolution of .vsigma.c,
.ovrhdot.γ1c and .ovrhdot.γ2c, are given as a **function** of **concn**. and
temp. to obtain dynamic phase **diagrams**. The third region shows a new
increase of the stress with shear rate. This domain is well defined in
our system and is practically independent of temp. and concn., contrary
to the situation in the first and second domains which show a great
dependence on these parameters. Measurements of flow birefringence
confirm the nature of the phase transition occurring in the second
domain and shows the existence of a shear-banding structure for
.ovrhdot.γ1c<.ovrhdot.γ<.ovrhdot.γ2c. At present, theory cannot explain
all the results obtained in this work.

L28 ANSWER 12 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   123:326307 CA
TI   Reentrant uniaxial-biaxial transition in polyethylene glycol doped
     lyotropic liquid crystals
AU   Shibli, Suhaila Maluf; Figueiredo Neto, Antonio Martins
CS   Instituto de Fisica, Universidade de Sao Paulo, Sao Paulo, 01452-990,
     Brazil
SO   Molecular Crystals and Liquid Crystals Science and Technology, Section
     A: Molecular Crystals and Liquid Crystals (1995), 260, 623-9
AB   Interferometric measurements of the effect of a polymer gradationally
     added to a lyotropic liq. crystal are reported. Studies of the phase
     diagram, birefringence and crit. exponents as a **function** of the polymer
     concn. are presented. Measurements of the optical birefringence as a
     function of **temp**. were performed with the **micellar** system K laurate, 1-
     decanol, and H2O doped with variable quantities of the polymer
     polyethylene glycol (PEG). The transitions from the calamitic nematic
     phase to a reentrant discotic-biaxial-discotic phase were obsd. when
     increasing the PEG molar concn. The results confirm the crit.
     properties of the uniaxial-to-biaxial nematic transition. The crit.
     exponent for the order parameter (β = 0.38) obtained for the sample
     without PEG is in good agreement with the value calcd. for the XY model.
     Some results with higher PEG doping concn. indicate that β is >0.38
     leading to the mean-field value.

L28 ANSWER 14 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   122:322361 CA
TI   Effect of pressure on the colloidal solution behavior of aqueous local
     anesthetic tetracaine solutions
AU   Matsuki, Hitoshi; Maruyama, Shoji; Kaneshina, Shoji
CS   Faculty of Engineering, University of Tokushima, Tokushima, 770, Japan
SO   Colloids and Surfaces, A: Physicochemical and Engineering Aspects
     (1995), 97(1), 21-6

AB   The soln. behavior of two local anesthetics, tetracaine-HCl (TC•HCl) and
      tetracaine-HBr (TC•HBr), in water was studied. The temp.-pressure
      diagrams of aq. TC•HCl and TC•HBr solns. of different concns. were detd.
      by observing the sudden change in transmittance accompanying the phase
      transition from the coagel phase to the **micellar** soln. under high
      pressure up to 170 MPa. The transition temp. was linearly elevated by
      applying pressure. It was seen that the temp.-pressure slopes of both
      anesthetics increase with increasing concn. and become const. above 0.3
      mol kg-1. We obtained the concn.-temp. phase diagram of TC•HCl soln.
      from the soly. vs. temp. curves at different pressures, which were detd.
      from the **concn. dependence** of the **temp**.-pressure **diagrams**, and the crit.
      micelle concn. (CMC) vs. temp. curves. The soly. curve intersects the
      CMC curve at a certain temp. under atm. pressure, which is regarded as
      the Krafft temp. of TC•HCl. The vol. change assocd. with the phase
      transition from coagel to **micelle** was estd. from the Clapeyron-Clausius
      equation using the values of the temp.-pressure slope above 0.3 mol kg-1
      and the transition enthalpy taken from the DSC study. The values were
      detd. to be 8.4 cm3 mol-1 for TC•HCl and 9.5 cm3 mol-1 for TC•HBr, resp.
      Further, by considering the vol. change of transition for TC•HCl among
      three states of anesthetic assembly, it was concluded that the soln.
      behavior of these anesthetics in water bears a striking resemblance,
      with respect to vol., to that of typical cationic surfactants such as
      alkyltrimethylammonium salts.

L28   ANSWER 15 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   121:264876 CA
TI   High-pressure phase equilibria study of the hydrogen-water **fluid** mixture
AU   Scalise, O. H.; Rodriguez, A. E.
CS   Instituto de Fisica de Liquidos y Sistemas Biologicos, IFLYSIB, UNLP-
      CONICET-CICPBA, CC 565 (1900), La Plata, Argent.
SO   Fluid Phase Equilibria (1994), 99(1-2), 49-62
AB   The phase behavior of aq. **fluid** binary mixts. is investigated by the
      application of thermodn. perturbation theory to the polarizable hard-
      sphere dipole model. Isotherms and isobars of the **three-dimensional**
      pressure-**temp**.-**compn**. phase **diagram** are calcd. for the H2-H2O **fluid**
      mixt. The isotherms and isobars investigated in this work are compared
      with the exptl. data.

L28   ANSWER 16 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   120:271761 CA
TI   **Computer** simulation of phase diagrams of binary and quasi-binary polymer
      solutions and blends
AU   Mumby, S. J.; Sher, P. B.; Case, F. H.; Eichinger, B. E.
CS   BIOSYM Technol., Inc., San Diego, CA, 92121, USA
SO   Annual Technical Conference - Society of Plastics Engineers (1992), 50th
      (Vol. 1), 1598-601
AB   A theor. approach was described which uses a **temp**. and **concn. dependent**
      interaction **parameter** to model liq.-liq. phase **diagrams** of quasi-binary
      polymer solns. and blends in which component may have mol. wt.
      distribution. The temp. and concn. coeffs. of the interaction parameter
      were derived by fitting to limited exptl. data. Two specific systems
      were used to illustrate the application of this method:
      polystyrene/acetone and PMMA/polycarbonate.

AN   119:56809 CA
TI   Generic patterns in the microstructure of midrange **microemulsions**
AU   Xie, M.; Zhu, X.; Miller, Wilmer G.; Bohlen, David S.; Vinson, Phillip
       K.; Davis, H. Ted; Scriven, L. E.
CS   Dep. Chem., Univ. Minnesota, Minneapolis, MN, USA
SO   Surfactant Science Series (1992), 44(Organized Solutions), 145-58
AB   A no. of water/hydrocarbon/surfactant systems have phase behavior
       similar to that of C12E5/octane/water. The precise shape and position
       of the one-phase **microemulsion** region in the **temp.**-surfactant **concn.**
       phase **diagram depends** on both the surfactant and the hydrocarbon. The
       authors investigate three addnl. water/hydrocarbon/surfactant systems to
       det. if the patterns of microstructure found for C12E5 with octane are
       generic. Two of the surfactants are nonionic, C10E4 and C8E3, and one
       is anionic, sodium bis(2-ethylhexyl)sulfosuccinate or Aerosol OT. Four
       exptl. techniques were used to det. microstructure. They are pulsed
       field gradient spin-echo NMR, freeze-fracture transmission electron
       microscopy, small-angle x-ray scattering, and quasielastic **light
       scattering**.

AN   118:75625 CA
TI   Viscoelastic behavior of fractionated ovine submaxillary mucins
AU   McCullagh, C. M.; Soby, L. M.; Jamieson, A. M.; Blackwell, J.
CS   Dep. Macromol. Sci., Case West. Reserve Univ., Cleveland, OH, 44106, USA
SO   Biopolymers (1992), 32(12), 1665-74
AB   **Soln**. properties of fractionated ovine submaxillary mucin (OSM) and
       asialo OSM (aOSM) in aq. guanidine hydrochloride have been investigated
       using **light scattering** and rheol. methods. Viscometric evidence is
       presented that the mol. structure of OSM is a wormlike chain in both
       dil. and concd. **soln**. The intrinsic **viscosity** shows mol. wt. dependence
       consistent with the linear extended chain conformation obsd. by **light
       scattering** measurements. The viscoelastic behavior of the OSM fractions
       in aq. guanidine hydrochloride was further examd. above the overlap
       concn. as a **function** of mol. wt. and **temp.** Under these **solvent**
       conditions in which the role of nonbonding intermol. interactions is
       minimized, OSM shows predominantly **fluid**-like behavior. However, high-
       mol.-wt. OSM shows evidence of the existence of an entanglement network
       at high concn. The frequency-dependent shear storage and loss moduli at
       all concns. and mol. wts. can be scaled to yield a master **curve** by
       incorporating typical viscoelastic shift **parameters**. The entanglement
       mol. wt. and concn. are consistent with literature data for extended,
       semiflexible wormlike chains. The behavior of aOSM is similar to that
       of intact OSM at comparable degrees of coil overlap, indicating that the
       terminal sialic acid residue on the carbohydrate side chain has no
       effect on the rheol. of concd. OSM **solns**. beyond that due to an increase
       in the hydrodynamic vol.

AN   118:12044 CA
TI   **Temperature dependence** of the non-Newtonian **viscosity** of elongated
       micellar solutions

AU   Makhloufi, R.; Cressely, R.
CS   Lab. Phys. Liq. Interfaces, Univ. Metz, Fr.
AB   New results are reported on the non-Newtonian **viscosity** of aq. **micellar solns**. CTAB in the presence of KBr, in the concn. range where the elongated **micelles** overlap. The expts. were performed as a **function** of the surfactant **concn.**, **temp.**, and shear rate by using a Couette-viscometer. In the non-Newtonian range at relatively low surfactant concn. (.1torsim.0.25 M/L), the results show that the flow curves obtained at different temps. converge to a single linear **curve** with a **characteristic** slope varying with the surfactant concn. These same data can be superposed on a master **curve** when appropriate reduced **variables** are used. The shape of the flow curves obtained at different temps. for a sufficiently high surfactant concn. is similar to that obtained for monodisperse polymer **solns**. at different mol. wts. The slope obtained (~ -1) is also predicted by the W. Graessley (1967) model in the theory of microviscoelasticity based on the entanglement concept for polymer **solns**. However, at surfactant concns. >0.25 M/L, the results show an unusual behavior. Above some crit. shear rate, it is possible to obtain an increase of the apparent **viscosity** with temp. One possible explanation of this effect can be found in the increase of the entanglement with concn. coupled with the temp. and direct flow effects on the scission and recombination rates of the **micelles**.

AN   116:46763 CA
TI   Theoretical and experimental determinations of the crossover from dilute to semidilute regimes of **micellar** solutions
AU   Carale, Teresa R.; Blankschtein, Daniel
CS   Cent. Mater. Sci. Eng., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
AB   A theor. framework for predicting the crossover surfactant concn. (X*) marking the transition from dil. to semidilute to soln. regimes of **micellar** solns. is presented. In the dil. regime, the **micellar** soln. consists of identifiable, rodlike **micelles** which are singly dispersed in the solvent, whereas in the semidilute regime it consists of a transient network of entangled rodlike **micelles**. The theor. formulationm incorporates the unique salient features of the **micellar** system, including the self-assembling nature, polydispersity, and flexibility of the rodlike **micelles** present in soln. This general theor. description is then used to examine the possible occurrence of a crossover from dil. to semidilute regimes in aq. solns. of the nonionic surfactant n-dodecyl hexaethylene oxide (C12E6). In the C12D6-H2O system, the X* vs. temp. crossover concn. curve intersects the coexistence curve, delineating the boundary between the 1- and 2-phase regions of the phase diagram, in the vicinity of the lower consolute (crit.) point, thus bisecting the phase diagram into dil. and semidilute regimes. It is noteworthy that the X* values predicted by using the full **micellar** size distribution agree well with those predicted under the assumption of monodisperse **micelles** having an aggregation no. n, corresponding to ⟨n⟩w, the wt.-av. **micelle** aggregation no. An attempt is also made to est. exptl. the C12E6

crossover **concn.** (X*) **based** on a comparison of the predicted dil.-soln. viscosities, calcd. in the context of a generalized M. Doi-S. Edwards (1978) theory applied to flexible, polydisperse rodlike **micelles**, with measured viscosities as a **function** of C12E6 **concn.** and **temp.** The exptl. deduced X* values compared favorably with the theor. predicted ones. As in the case of X*, it is noteworthy that predicted viscosities (using the full **micellar** size distribution) are in close agreement with those predicted under the assumption of monodisperse **micelles** having an aggregation no., n = ⟨n⟩w. There is also an interesting **temp. dependence** of the viscosity vs. C12E6 concn. curves. At very low surfactant concns., the viscosity follows the conventional behavior; i.e., it decreases with increasing temp. Beyond a certain surfactant **concn.**, the **temp. dependence** is reversed; i.e., the viscosity increases with increasing temp. An interpretation of this behavior in the context of **micellar** growth is suggested. A discussion of the implications of the new findings for modeling the phase behavior of aq. **micellar** solns. contg. nonionic surfactants of the alkyl polyethylene oxide (CiEj) type is also presented.

AN   115:84552 CA
TI   **Three-dimensional** network plots using colors for a fourth variable for binary mixtures of carbon dioxide or ethane and 1,4-dioxane under sub- and supercritical conditions
AU   Kueppers, Stephan; Leyendecker, Dagmar; Schmitz, Franz Peter; Klesper, Ernst
CS   RWTH Aachen, Aachen, D-5100, Germany
SO   Journal of Supercritical Fluids (1990), 3(3), 121-6
AB   The effect of the phys. parameters (compn., pressure, and temp.) on the chromatog. parameters (capacity ratio and resoln.) for mixed mobile phases composed of CO2 or ethane as the base eluents and 1,4-dioxane as modifier are reported. A dioxane-treated silica stationary phase and a test mixt. of polycyclic arom. hydrocarbons as the analyte have been used. The results are presented by means of **three-dimensional** network plots displaying two variables on the z-axis. These variables are the capacity ratio, k', of the latest eluting compd. (represented by the shape of the **three-dimensional** surface) and the av. resoln., Rm, of the text mixt. (represented by coloring the surface). The x- and y-axis of **three-dimensional plots** represent the phys. parameters, **compn.**, and **temp.** in isobaric **plots**, or pressure and temp. of the mobile phase in isocratic plots. The simultaneous presentation of the capacity ratio and the resoln. in one plot is useful in showing directly the interrelation between these parameters which is of value for the optimization of sepns.

AN   115:9849 CA
TI   Viscoelasticity and effects of interphase interaction in blends of normal and **liquid** crystalline thermoplasts
AU   Semakov, A. V.; Kantor, G. Ya.; Vasil'eva, O. V.; Dobrosol, I. I.; Khodyrev, B. S.; Kulichikhin, V. G.
CS   Inst. Neftekhim. Sint. im. Topchieva, Moscow, USSR
SO   Vysokomolekulyarnye Soedineniya, Seriya A (1991), 33(1), 161-9

LA   Russian
AB   Viscoelastic characteristics (Young's modulus, loss modulus, loss
     tangent) of blends of bisphenol A-dichlorodiphenyl sulfone copolymer
     with **liq.**-cryst. dihydroxyphenyl-isophthalic acid-terephthalic acid
     copolymer were detd. by the dynamic mech. method in the shear
     deformation regime in the whole range of the blend compns. at temps.
     ranging from -150° to +200°. **Computer** processing of the exptl. results
     permits to present them as **3-dimensional** modulus-**temp.**-blend **compn.**
     diagrams or 2-dimensional maps of modulus isolines. This approach led
     to the detection of small shifts in the positions of the α- and γ-
     relaxation transitions of one polymer in the presence of the other
     polymer. Splitting of the glass temp. of the polysulfone was explained
     by differences in the relaxational mobility of its macromols. near the
     interphase and further away from the interphase. Anal. of the exptl.
     data using the Tsyao-Halpin model led to the conclusion about enhanced
     interaction of the components of the blend in the interphase.

L28 ANSWER 29 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   114:214273 CA
TI   Thermorheologic properties of aqueous **solutions** and gels of Tetronic
     1508
AU   Spancake, Christopher W.; Kildsig, Dane O.; Mitra, Ashim K.
CS   Sch. Pharm. Pharm. Sci., Purdue Univ., West Lafayette, IN, 47907, USA
SO   Pharmaceutical Research (1991), 8(3), 345-9
AB   The rheol. properties of aq. **solns.** and gels of Tetronic 1508 were
     investigated as a **function** of polymer **concn.** and **temp.** utilizing
     rotational viscometry. Below the sol-gel transition temp. the polymer
     solns. were low in **viscosity** and exhibited Newtonian rheol. behavior
     even at concns. of 20 and 25% (wt./wt.). Upon sol-gel transition, the
     more concd. polymer **solns.** underwent a dramatic four- to five-orders of
     magnitude increase in **viscosity**, resulting in the formation of a rigid
     gel structure. Above the sol-gel transition temp., the gels **displayed**
     pseudoplastic and plastic rheol. **properties** and the **viscosity** of the
     gels remained at a relatively const. value over a wide temp. range.
     Eventually, the thermal energy of the system exceeded the bonding forces
     within the gel structure, resulting in a gel-sol transition which was
     marked by a dramatic decrease in the **viscosity** of the system. Above the
     gel-sol transition temp., the system reverted to a Newtonian **fluid** with
     viscosities very similar to those found for the Tetronic 1508 **solns.** at
     temps. below the sol-gel transition temp. The thermodn. implications of
     the gel-sol transition are discussed.

L28 ANSWER 30 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   113:238005 CA
TI   **Automated** establishment and plotting of multivariate functions
AU   Yan, Zequn; Tang, Xiaoheng
CS   Dep. Chem. Eng., Beijing Inst. Chem. Technol., Beijing, Peop. Rep. China
SO   Analytica Chimica Acta (1990), 234(2), 493-7
AB   The earlier package for univariate functions is extended to multivariate
     functions in the QQN series software, which contains millions of models.
     The models are characterized by numbered basic and compd. functions
     which are selected by the user. Plots for a selected model are
     displayed in rotatable **three-dimensional** coordinates. The package can

be run on an IBM-PC or compatible **computer**. An application to plotting the thermal capacity of alkanes is given.

AN   112:166184   CA
TI   Phase equilibrium calculations and **three-dimensional computer** graphics representation
AU   Nitta, Tomoshige; Ikeda, Kazufumi; Katayama, Takashi
CS   Fac. Eng. Sci., Osaka Univ., Osaka, 560, Japan
SO   Fluid Phase Equilibria (1989), 53, 105-12
AB   An important role of global stability anal. is emphasized for phase equil. calcns. to det. the thermodynamically most stable **soln.** An algorithm used in this work is to find first an outside **soln.** in the Gibbs energy surface and then to search any inside **solns.** by means of the bisection search principle. The global stability anal. should also be applied to mixt. crit. points calcd. from the conventional crit. condition. Typical phase diagrams are calcd. for binary mixts. including three phases (gas, **liq.** and solid) by using the Soave-Redlich-Kwong equation of state. **Three-dimensional** pressure-**temp.-compn.** (pTx) phase **diagrams** were **displayed** on a personal **computer** with functions of rotation, zoom, enlargement and projections on the pT, px and Tx axes.

AN   111:19736   CA
TI   Polymorphic phase behavior of lysopalmitoylphosphatidylcholine in poly (ethylene glycol)-water mixtures
AU   King, Martin D.; Marsh, Derek
CS   Abt. Spektrosk., Max-Planck-Inst. Biophys. Chem., Goettingen, D-3400, Fed. Rep. Ger.
SO   Biochemistry (1989), 28(13), 5643-7
AB   The polymorphic phase behavior of 1-palmitoyl-2-lyso-sn-glycero-3-phosphocholine dispersions in excess H_2O was studied as a **function** of **temp.** and PEG **concn.**, using 1H dipolar-decoupled 31P NMR spectroscopy and **turbidity** measurements. The phase behavior **depended** on both lipid **concn.** and PEG concn., and most of the NMR expts. were conducted at a lipid concn. of 15 mg/mL. At low PEG concns. (0-12 wt %), a thermotropic transition occurs at 3-5° with increasing temp., from an interdigitated lamellar gel (Lβi) phase to a normal **micellar** phase. At intermediate PEG concns. (12-20 wt %), thermotropic transitions take place with increasing temp., 1st from the lamellar gel phase to a fluid cubic (Qα) phase and then at higher temps. from the cubic phase to the **micellar** phase. At intermediate PEG concns. above the former range (20-30 wt %), thermotropic transitions take place with increasing temp., 1st from the lamellar gel phase to the cubic phase then from the cubic phase to a normal hexagonal (HI) phase, and finally from the hexagonal phase to the **micellar** phase. At high PEG concns. (>30 wt %), a thermotropic transition takes place with increasing temp. from the lamellar gel phase directly to the fluid hexagonal phase. At these high PEG concns., the **micellar** phase is not attained within the accessible temp. range (≤90 ° C). The kinetics of some of the phase changes are slow, with half-times of the order of 15 min, and considerable hysteresis, with coexisting phases, is obsd. on the downward temp. scans. The **turbidity**

measurements indicate considerable changes in optical d. in single-phase regions, presumably corresponding to changes in aggregate size. Discontinuities in the **temp. dependence** of the optical d. are obsd. corresponding to some of the phase boundaries, and conversion to the **micellar** phase is evidenced by the transition to optical clarity. A pseudo-binary-phase **diagram** has been constructed as a **function** of PEG **concn.**, and comparison with the phase **diagram** of lysopalmitoylphosphatidylcholine as a function of H2O content (Arvidson, G., et al., 1985) indicates that PEG controls the polymorphic phase behavior by reducing H2O activity. These results are discussed within the context of PEG-induced cell fusion.

L28 ANSWER 37 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   110:180272 CA
TI   Phase behavior in **fluid** and solid mixtures at high pressures
AU   Streett, William B.
CS   Sch. Chem. Eng., Cornell Univ., Ithaca, NY, 14850, USA
SO   Pure and Applied Chemistry (1989), 61(2), 143-52
AB   Following the description of a classification scheme for **fluid** phase diagrams of two-component systems, based on boundary lines in pressure-temp. space, the **three-dimensional** features of several important classes of pressure-**temp.-compn.** phase **diagrams** for two-component mixts. at high pressures (up to 100 kbar) are described. The discussion includes two- and three-phase equil. between gas, **liq.** and solid phases, with emphasis on the qual. effects of pressure on these systems and the picture of continuity between different types of crit. and 3-phase phenomena that has emerged from studies at high pressures.

L28 ANSWER 46 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   107:98863 CA
TI   Prediction of transport properties of R22-DMF refrigerant-absorbent combinations
AU   Dorairaj, S.; Agarwal, R. S.
CS   Mech. Eng. Dep., Indian Inst. Technol., Delhi, 110016, India
SO   International Journal of Refrigeration (1987), 10(4), 224-8
AB   The transport properties are evaluated of R22-DMF **solns.** A no. of methods were used to est. the thermal **cond.**, **viscosity**, and surface tension. The selection of suitable methods were made by computing the properties of NH3-water mixts. and comparing them with available exptl. data. Other thermophys. properties, i.e., thermal diffusivity, sp. heat, and **liq.** d., were predicted using std., well established methods over a wide range of temp. and compn. Correlations were developed to express each property as a **function** of **compn.** and **temp.** The **properties** are also presented in a suitable **graphical** form.

L28 ANSWER 50 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   104:116572 CA
TI   Phase diagrams of the decylammonium chloride/ammonium chloride/water system in the nematic **micellar** region
AU   Rizzatti, Mara Regina; Gault, John D.
CS   Dep. Fis., Univ. Fed. Santa Catarina, Florianopolis, 88000, Brazil
SO   Journal of Colloid and Interface Science (1986), 110(1), 258-62
AB   Phase **diagrams** were obtained as a **function** of **temp.** and surfactant

concn. for the decylammonium chloride (DACl)-water binary system and for ternary systems contg. 1:1627, 1:20, and 1:10 wt. ratios of NH4Cl:DACl. The binary system presents the usual hexagonal (middle soap), lamellar (neat soap), isotropic, and "coagel" phases as well as a **micellar** nematic of the disk type. The addn. of NH4Cl greatly inhibits the formation of the hexagonal phase and increases the size of the nematic and lamellar regions while shifting them toward higher temps. As the concn. of NH4Cl to DACl passes 7 wt.% (for 45 wt.% DACl), the nematic is replaced by a lamellar-isotropic two-phase region.

L28 ANSWER 51 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   101:198615 CA
TI   Apparent molal volume studies of 2,6-di-tert-butyl-4-methylphenol, 2-tert-butyl-4-methoxyphenol, and 2,6-di-tert-butyl-4-(hydroxymethyl) phenol in aqueous **micelle** solutions of sodium dodecanoate as a **function** of **micelle concentration** and **temperature**
AU   Alauddin, M.; Verrall, Ronald E.
CS   Dep. Chem., Univ. Saskatchewan, Saskatoon, SK, S7N 0W0, Can.
SO   Journal of Physical Chemistry (1984), 88(23), 5725-30
AB   The partial molal vols. of 2,6-di-tert-butyl-4-methylphenol, 2-tert-butyl-4-methoxyphenol, and 2,6-di-tert-butyl-4-(hydroxymethyl)phenol in aq. **micelle** solns. of Na dodecanoate were detd. by d. measurements as a **function** of **micelle concn.** and **temp.** 2,6-Di-tert-butyl-4-methylphenol is solubilized in the interior of the **micelle** while 2-tert-butyl-4-methoxyphenol is solubilized by absorption at the **micelle**-H2O interface. Estns. of asym. vol. interaction terms vxy and vxyy for 2-tert-butyl-4-methoxyphenol indicate a strong ion-dipole interaction of relatively polar OMe and OH groups with ionic head groups of the surfactant chains. While the time-av. environment of 2,6-di-tert-butyl-4-(hydroxymethyl) phenol is primarily nonaq., there appear to be some H2O mols. present in the surrounding region. These conclusions are supported by the **temp. dependence** of the limiting slope of the **plots** of .vphi.v vs. concn. for these systems. The UV molar absorptivity εmax, of these solubilizates in aq. **micellar** and hydrocarbon solvents are reported and discussed.

L28 ANSWER 55 OF 103 CA COPYRIGHT 2006 ACS on STN
AN   98:95565 CA
TI   The solubility of benzodiazepines in sodium salicylate **solution** and a proposed mechanism for hydrotropic solubilization
AU   Badwan, A. A.; El-Khordagui, L. K.; Saleh, A. M.; Khalil, S. A.
CS   Fac. Pharm., Univ. Al-Faateh, Libya
SO   International Journal of Pharmaceutics (1982), 13(1), 67-74
AB   Results of soly. and spectral studies indicate that an electrostatic force of the donor-acceptor type plays an important role in the solubilization of poorly sol. benzodiazepines by hydrotropy. In an attempt to explain the **characteristic** pos. deviation in hydrotropic solubilization **diagrams**, the **soln. properties** of Na salicylate (I) [54-21-7] were studied. **Cond.** expts. indicate mol. aggregation of I at 0.67 M at 25°. The aggregation **concn.** increases as a **function** of **temp.** Results from d., **viscosity,** and diffusion studies are consistent with those of **cond.** measurements. The marked increase in the solubilizing effect of I is probably assocd. with aggregate formation. Inclusion of the benzodiazepine mols. in the I aggregates may be the mechanism

responsible for the solubilization of these drugs. A donor-acceptor
interaction between I and benzodiazepine mols. is assumed to stabilize
such an inclusion and det. the degree of soly. of benzodiazepines in I
solns.

L28   ANSWER 56 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN   98:8370 CA
TI   Poloxamer association in aqueous solution
AU   Al-Saden, A. A.; Whateley, T. L.; Florence, A. T.
CS   Dep. Pharm., Univ. Strathclyde, Glasgow, G1 1XW, UK
SO   Journal of Colloid and Interface Science (1982), 90(2), 303-9
AB   Aq. solns. of the surface active poly(oxyethylene)-poly(oxopropylene)-
       poly(oxyethyene) block copolymers (poloxamers) were studied by using
       photon correlation spectroscopy (quasi-elastic light scattering) and
       viscosity measurements. Poloxamers 184 and 237 showed detectable
       aggregates at 25° only at concns. .gtorsim. 6% with size increasing with
       concn. and with significant polydispersity, probably indicating a
       multiple assocn. process. At 35°, essentially invariant values for the
       hydrodynamic radius were found over a wide concn. range and the systems
       were essentially monodisperse; these systems are more likely to be
       represented by a closed assocn. model. The more hydrophilic Poloxamer
       188, however, retained its **concn. dependence** of aggregate size ≤55°.
       The variation with temp. of both the hydrodynamic radius of aggregates
       and the intrinsic viscosity of several poloxamers was rationalized by
       relating the **temp.-dependency curves** to the cloud point of the
       poloxamer. In some cases only certain sections of the curve are
       observable when the cloud point is high, e.g., >100°, or low, e.g.,
       <40°.

L28   ANSWER 62 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN   89:24930 CA
TI   A study of the thermodynamic properties of the system polystyrene-
       ethylcyclohexane by the **light scattering** method
AU   Kratochvil, Jaroslav; Sedlacek, Blahoslav
CS   Inst. Macromol. Chem., Prague, Czech.
SO   British Polymer Journal (1977), 9(3), 206-11
AB   The thermodn. properties of the polystyrene [9003-53-6]-
       ethylcyclohexane [1678-91-7] system were examd. by the **light scattering**
       method of Th. G. Scholte (1970) between 57-80° for wt. fractions of the
       polymer 0-0.16 to det. the **temp.**, **concn.**, and mol. wt. **dependence** of the
       interaction parameter of the polymer-**solvent** system near the θ-temp.
       Spinodals calcd. from the coeffs. of the interaction **parameter** were in
       good agreement with exptl. **curves**. The results were compared with a
       pseudoideal **soln**.

L28   ANSWER 83 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN   72:25629 CA
TI   Binary systems
AU   Cohen-Adad, Roger
CS   Fac. Sci. Lyon, Lyons, Fr.
SO   Bulletin de l'Union des Physiciens (1969), 63(517), 1201-5
LA   French
AB   Primarily, phase changes are discussed by means of a **3-dimensional**

diagram with the axes **temp**., pressure, and **concn**. A plane for const. pressure shows a closed curve, and the crit. point is an extreme of the curve. A plane for const. concn. shows that the crit. point in this case is no longer an extreme of the curve. A **liq**. heated under const. pressure passes through a heterogeneous zone (vapor/**liq**.) and becomes **liq**. again. A retrograde phenomenon is obsd. Likewise, a gaseous mixt. under isothermal compression passes through the heterogeneous zone and becomes gaseous again. As a 2nd problem, the triple points, which are characterized by 8 variables, are discussed. By means of the equation of state and the chem. potentials, the 3 triple points of the system are calcd. The 3 points representative of the compn. of the phases α, β, γ are situated on a cylinder. The equation of this cylinder is $\varphi\alpha,\beta,\gamma$ (p,T) = 0 and represents a generalization of the Clapeyron equation for any univariant equil.

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L28   ANSWER 96 OF 103   CA   COPYRIGHT 2006 ACS on STN
AN    50:10754  CA
OREF  50:2216g-i,2217a
TI    Chemical reactor stability and sensitivity
AU    Bilous, Olegh; Amundson, Neal R.
CS    Univ. of Minnesota, Minneapolis
SO    AIChE Journal (1955), 1, 513-21
AB    The purpose of this paper is to consider the well-agitated continuous
      reactor from the standpoint of stability of the steady state. It has
      been shown in the past that chem.-reaction systems may be unstable in
      the sense that on slight perturbation they tend to move to a more stable
      state or that they are stable in their steady states, small
      perturbations being self-correcting so that the system possesses
      autoregulation. In this paper methods of developing criteria for the
      detn. of stability or instability are presented and applied to some
      simple problems. In order that the effect of large perturbations on the
      system can be detd., complete solutions of the rigorous equations are
      obtained on the analog computer (R.E.A.C.). A complete plot of reaction
      paths in the concn.-temp. plane can be obtained in this manner. Because
      of the nonlinearity of the system one cannot predict with certainty what
      steady state will be approached after a given large perturbation,
      multiple steady states being assumed possible. From the phase plot of
      reaction paths the regions in the plane which lead to certain steady
      states are delineated. Also it is shown that the natural behavior of a
      reactor is not to approach an unstable state. So far as the reactor is
      concerned, the unstable state does not exist. The stability of the
      system is important to the engineer, as control will be easy or
      difficult and product quality will be satisfactory or not depending upon
      the relative stability of the steady state. An unstable state would
      require more elaborate control than a stable state.

=> log y
STN INTERNATIONAL LOGOFF AT 12:00:22 ON 28 APR 2006

=> d his

      (FILE 'HOME' ENTERED AT 09:45:32 ON 27 APR 2006)
      FILE 'CA' ENTERED AT 09:45:39 ON 27 APR 2006
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L1   5199 S (AUTOMAT? OR COMPUTER OR PROCESSOR OR MICROPROCESS?)(7A)(LIGHT(1A)
          SCATTER? OR TURBID? OR NEPHALOM? OR NEPHELEM? OR NEPHELO? OR
          NEPHLOM? OR NEPHOL? OR PH OR VISCOS? OR CONDUCTIV?)
L2   2283 S L1(8A)(ANALY? OR DETECT? OR DETERMIN? OR ASSAY? OR TEST? OR MEASUR?
          OR MONITOR? OR INSTRUMENT? OR DEVICE OR SENSE OR SENSOR OR SENSING
          OR PROBE OR PROBING OR QUANTIT? OR QUANTIF? OR EVALUAT? OR ASSESS?)
L3     79 S L2 AND(EMULS? OR MICROEMULS? OR SUSPENS? OR MICELL?)
L4    187 S L2 AND(TEMPERATUR? OR DEGREE) AND(CONCENTRAT? OR COMPOSIT?)
L5     90 S L4 AND(LIQUID OR SOLVENT OR SOLUTION OR FLUID)
L6    317 S L2 AND(CURVE OR PLOT? OR DIAGRAM? OR DISPLAY? OR GRAPH?)
L7     21 S L6 AND PHASE
L8    124 S L6 AND(LIQUID OR SOLVENT OR SOLUTION OR FLUID)
L9     76 S L6 AND(OIL OR POLYMER OR TITRA?)
L10     7 S L4 AND PHASE
L11   313 S L3,L5,L7-10
L12   236 S L11 NOT PY>1997
L13    41 S L11 AND PATENT/DT AND PY<1999
L14   240 S L12-13
L15   232 S L14 NOT(SOLID STATE OR RHODOPS? OR LIVER OR BOARD OR LEACH OR
          STORAGE BATTERY)
L16   219 S L15 NOT(ELECTRODEP? OR BOILER OR SOIL OR SLAG OR FOAM OR JACKET?)
L17     3 S L15 NOT L16 AND(PHOSPHATE OR SOIL SOLUTION)
L18   207 S L16 NOT(BLOOD GAS OR WASTEWATER OR KETONE OR POCKET OR RIPENESS OR
          NONELECTROL? OR SOLAR OR THERMOSTATIC)
L19     2 S L16 NOT L18 AND EQUILIB?
L20   187 S L18 NOT(AEROSOL OR AMEBO? OR CHROMATE OR PROGRAMMED DESOR? OR PH
          STAT OR ELECTROLESS OR GASTRIC OR THROMBIN OR AUXIN OR PICKLING)
L21     1 S L18 NOT L20 AND DRUG STABIL?
L22   172 S L20 NOT(RECIPE OR CORAL OR HEAT TRANSFER OR MICROWAVE OR BLEACH? OR
          LEACHING OR GRAPHITE OR FINGER OR GAS ANALY? OR INCUBAT?)
L23   163 S L22 NOT(NUCLEAR OR PWR OR NMR OR TANNING OR COMPENSATING DIODE OR
          COAL OR DIMER)
L24   169 S L17,L19,L21,L23

=> d bib,ab 124 1-169
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L24   ANSWER 8 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   126:53257 CA
TI   Conductivity of **Concentrated** Aqueous **Solutions** of Several Fluorine-
      Containing Electrolytes in a Wide Range of **Concentrations** and
      Temperatures
AU   de Diego, Alberto; Madariaga, Juan M.; Chapela, Eduardo
CS   Kimika Analitikoaren Saila, Euskal Herriko Unibertsitatea, Bilbao, E-
      48080, Spain
SO   Journal of Chemical and Engineering Data (1997), 42(1), 202-208
AB   Specific conductivities (κ) of **concd.** aq. **solns.** of several fluorine
      contg. electrolytes, fluoroboric acid (HBF4), fluorosilicic acid
      (H2SiF6), and fluorotitanic acid (H2TiF6), at mass percents (100wAc)
      from 10 to 50 at 15, 25, 35, and 45 °C have been **measured** by making use
      of an **automatic** system based on the "electrodeless **cond.**" technique.
      The results have been analyzed in terms of the well-established Casteel-
      Amis equation and by polynomial equations in the **concn.** As a result,
      empirical models of the type $\kappa = f(100wAc)t$ have been proposed, which

reproduce the results of each chem. system with an overall precision of about ±0.3% and enable the interpolation of cond. at each **temp**. in the whole range of **concn**. studied.

L24   ANSWER 14 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   124:271734   CA
TI   Aqueous Solubilities of Phenol Derivatives by Conductivity Measurements
AU   Achard, C.; Jaoui, M.; Schwing, M.; Rogalski, M.
CS   Laboratoire de Thermodynamique et d'Analyse Chimique, Universite de
       Metz, Metz, F-57045, Fr.
SO   Journal of Chemical and Engineering Data (1996), 41(3), 504-7
AB   The aq. solubilities of 5-chlorophenols and 3-nitrophenols were measured
       by an elec. cond. method at 15 and 48°. The solubilities of 2-
       chlorophenol, 4-chlorophenol, 2,4-dichlorophenol, 2,4,6-trichlorophenol,
       pentachlorophenol, 2-nitrophenol, 4-nitrophenol, and 2,4-dinitrophenol
       were studied. **Automatic cond. measurements** allow a **detn**. of the solute
       concn. and hence the soly. **Emulsion** formation can also be followed.
       The exptl. results are in good agreement with literature values.

L24   ANSWER 15 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   124:15076   CA
TI   An optimized **nephelometer** and nonlinear **processor** for oil-in-water
       monitoring
AU   Green, D.A.; Naimimohasses, R.; Barnett, D.M.; Smith, P.R.
CS   Department of Electronic and Electrical Engineering, Loughborough
       University of Technology, Leicestershire, LE11 3TU, UK
SO   Proceedings of SPIE-The International Society for Optical Engineering
       (1995), 2503, 35-43
AB   The measurement of low concns. of oil-in-water can been performed by
       fluorometry but variations in the phys. properties of different oils, in
       particular their dispersed particle sizes, significantly affect the
       degree of fluorescence and hence the accuracy of the measurement.
       Optical scattering can be used to investigate the phys. state of oil-in-
       water **suspensions**, the strength and direction of the scattering being
       dependent on the phys. and optical properties of the suspended
       particles. Optical scattering studies, in conjunction with neural
       network processors, have recently shown the capability to distinguish
       between oil **suspensions** over a range of concns. In this paper we extend
       the approach of combined nephelometry and neural networks and also
       investigate a technique for minimizing the complexity of design of the
       nephelometer. Whereas earlier work demonstrated the technique using
       dissimilar oil types in tap water, we here study the possibly more
       practical and cogent example of similar oils (two crudes and an engine
       oil) in sea water.

L24   ANSWER 17 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   123:86730   CA
TI   A sensor for online measurement of the viscosity of non-Newtonian **fluids**
       using a neural network approach
AU   Chang, Victor; Zambrano, Alexander; Mena, Melcris; Millan, Agustin
CS   Industrial Measurement and Automation Section, INTEVEP S.A. Research and
       Technological Support Center, Affiliate of Petroleos de Venezuela, PO
       Box 76343, Caracas 1070A, Venez.

AB   Non-Newtonian **fluids** are characterized by a nonlinear relation between
     viscosity and shear rate. Typical examples are some **emulsions**. The
     graph of viscosity as a function of the shear rate is known as the
     rheogram or the rheol. chart. A very simple mech. device with minimal
     moving parts has been used as a sensor for measuring both the viscosity
     and the shear rate. A math. model to measure the viscosity in Newtonian
     fluids has been confirmed. However, a math. model of the sensor for the
     case of non-Newtonian **fluids** is difficult because several variables
     defining the transducing properties are not independent and the
     measurement is made during transient dynamic conditions. In solving
     this problem, a neural network approach has been used. The input
     consists of two voltages representing the sensor response and the temp.
     The outputs are the viscosity and the shear rate. The measurement
     system is made out of a sensor head, an electronic circuit for powering
     the sensor and signal conditioning, and a neural network software, based
     in the back propagation learning algorithm. The neural net has been
     trained using exptl. data from a lab. viscometer and a simplified math.
     correlation relating the viscosity and input voltages. The sensor has
     been tested by measurement of the viscosity and the shear rate for
     emulsions of heavy crude **oil** (bitumen) and water. Good correlation
     between exptl. data and the system output was obsd. after the neural net
     training. Online tests of the sensor are being conducted.

αβσL24   ANSWER 20 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   122:197707   CA
TI   Automation of **phase diagram** recording
AU   Rouse, J.; Adamy, S. T.; Mehrteab, A.; Broze, G.
CS   Technol. Cent., Colgate-Palmolive Co., Piscataway, NJ, 08855, USA
SO   Journal of the American Oil Chemists' Society (1995), 72(1), 37-42
AB   An automated **titrn.** system was developed for generating data to
       construct **phase diagrams**, which are extremely useful in the development
       of personal and household products. The authors describe the system and
       how it can be used to perform dual **titrn.** A clear **microemulsion** sample
       is **titrated** with an **oil** until the dispersion turns cloudy (defined to be
       a transmittance < 90%). This mixt. is then dosed with a certain
       quantity of cosurfactant, more than enough to clear the mixt. The
       sample is again **titrated** with **oil**. This process continues until the
       sample no longer clears upon adding cosurfactant. The resulting
       measurements of **oil** uptake can be used to characterize the boundaries of
       the L1 or **oil**-in-H2O **microemulsion** region of the **phase** space. Expts.
       for up to sixteen samples can be performed, each having individual setup
       and operating instructions. Features include completely **automated**
       operation, **computer**-controlled 2-speed mixing, **viscosity detection** at
       the end-point condition, and the storage of results in a computerized
       format.

L24   ANSWER 27 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   119:273701   CA
TI   Apparatus for the automatic photometric determination of the
       temperature-dependent and reversible solubility states of cellulose
       ethers and other organic substances, and its use
PA   Hoechst A.-G., Germany

SO   Ger. Offen., 11 pp.
PI   **DE 4135357**   **A1**   **19930429**   **DE 1991-4135357**   **19911026**
PRAI DE 1991-4135357   19911026
AB   An app. for **monitoring** and self-regulation of the **automatic** photometric
      measurement of product-specific reversible temp.-**turbidity curves** for
      cellulose ethers and other substances coagulated by temp. and/or
      electrolytes is disclosed. A schematic **diagram** of the app. is given.

L24   ANSWER 41 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   114:187998   CA
TI   Determination of the critical **micelle** concentration. Part 1.
      Computerized extremization of the curvature of the functions $\sigma = f(c)$ or
      $\gamma = f(c)$
AU   Drugarin, Cornel; Balint, Maria Agneta; Balint, Stephen
CS   Univ. Timisoara, Timisoara, Rom.
SO   Tenside, Surfactants, Detergents (1991), 28(1), 57-61
AB   "Extremization" of the curvature of elec. cond. vs. concn. and surface
      tension vs. concn. curves is proposed as a new method to det. by
      computer the crit. **micelle** concn. and **micellization** range of
      surfactants. Results obtained for the series of surfactants $C8H17-p-$
      $C6H4-O(CH2CH2O)nCOR$ are presented.

L24   ANSWER 44 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   113:47462   CA
TI   Measurement and correlation of **liquid-liquid equilibria** up to critical
      solution temperature
AU   Ochi, Kenji; Tada, Masayuki; Kojima, Kazuo
CS   Dep. Ind. Chem., Nihon Univ., Tokyo, Japan
SO   Fluid Phase Equilibria (1990), 56, 341-59
AB   An app. for measuring the mutual soly. **curve** of binary systems at
      moderate pressures is presented which is composed of an **equil.** cell made
      of pressure glass with film heaters and a light sensor. The formation
      or disappearance of turbidity was confirmed by the intensity of the
      scattered light, which is **monitored** by a **computer** via digital
      multimeter. The measurement of temps. was made with a platinum
      resistance thermometer. This technique was examd. for measuring the
      mutual solubilities in the range of room temp. to the crit. **soln.** temps.
      on the binary systems: butanol - water, Et Me ketone - water, butyl
      cellosolve - water and diethylene glycol - benzene. The exptl. results
      of the mutual solubilities were correlated by the NRTL equation.

L24   ANSWER 49 OF 169   CA   COPYRIGHT 2006 ACS on STN
AN   110:101661   CA
TI   Composition of mixed **micellar** systems of cetrimide and chlorhexidine
      digluconate
AU   Attwood, D.; Patel, H. K.
CS   Dep. Pharm., Univ. Manchester, Manchester, M13 9PL, UK
SO   International Journal of Pharmaceutics (1989), 49(2), 129-34
AB   The variation of the crit. **micelle** concn. (CMC) with the molal ratio of
      components in mixed **micellar** systems of cetrimide and chlorhexidine
      digluconate was **detd.** by an **automated cond.** technique. The equil.
      distribution of components between **micelle** and monomer phases was

evaluated by anal. of the CMC data using a theor. treatment based on excess thermodn. quantities and by an empirical treatment of the cond. data. The addn. of iso-Pr alc. in concns. up to 2 mol•dm-3 had little significant effect on the compn. of the mixed **micelles** of these systems.

L24   ANSWER 60 OF 169 CA COPYRIGHT 2006 ACS on STN
AN   103:184661 CA
TI   Multiparametric **curve** fitting - VIII. The reliability of dissociation constants estimated by analysis of absorbance-pH **curves**
AU   Meloun, Milan; Javurek, Milan
CS   Dep. Anal. Chem., Coll. Chem. Technol., Pardubice, CS-532 10, Czech.
SO   Talanta (1985), 32(10), 973-86
AB   The program SPOPT ests. stability consts. βpqr and molar absorptivities εpqr of all light-absorbing species MpLqHr by anal. of the absorbance-concn. (or absorbance-pH) **curve**. The program DCMINUIT ests. dissocn. consts. and molar absorptivities of protonated species. Both programs were tested and compared with DCLET and LETAGROP-SPEFO for anal. of the overlapping equil. of a triprotic acid. Computer **plots** of the residual-square-sum function are used to test the conditioning of parameters. Two approaches are made to formulation of the math. model, and several optimization algorithms are tested to find a reliable minimization procedure. The accuracy of ill-conditioned parameters is dependent on the precision of the absorbance measurements. General rules for investigation of A-pH **curves** are recommended.

L24   ANSWER 62 OF 169 CA COPYRIGHT 2006 ACS on STN
AN   103:110518 CA
TI   Particle size distribution **measurement** by **automated** dual wavelength **turbidimetry**
AU   Haseler, Simon C.
CS   Res. Div., Kodak Ltd., Harrow/Middlesex, UK
SO   Particle Characterization (1985), 2(1), 14-19
AB   Numerous methods are reported in the literature for the measurement of (submicron) particle size distribution by turbidimetry. Attempts to apply some of these to coupler dispersions (oil-in-water **emulsions** of importance in the photog. industry) have not in general proved satisfactory, however, because small exptl. errors lead to relatively large errors in the calcd. distribution. In order to reduce this problem a turbidimetric technique involving measurements at two widely sepd. wavelengths, 400 nm and 2.22 μm, was developed. Its accuracy has been demonstrated using polydisperse polystyrene latexes of known size distribution. With the aid of simple, purpose-built equipment, linked to a desktop computer, the technique is largely automated so that it is suitable for use by an unskilled operator working in a factory environment.

L24   ANSWER 65 OF 169 CA COPYRIGHT 2006 ACS on STN
AN   102:82213 CA
TI   Thermodynamic **analysis** and **automatic** drawing of electropotential E-**pH** **diagrams**
AU   Wang, Leshan; Xu, Zhihong; Li, Danian
CS   Inst. Chem. Metall., Acad. Sin., Beijing, Peop. Rep. China
SO   Kuangye Gongcheng (1984), 4(4), 52-8

LA Chinese
AB A computer-programmed system is established, based on the fundamental
    principle of aq. **soln**. thermodn. and the inorg. thermochem. data. The
    system enables data retrieval, independent chem. reaction balance,
    thermodn. calcn., automatic drawing of predominance areas of the
    diagrams, and output of all related data. Hydrometallurgical and
    corrosion problems can be solved by the system.

L24 ANSWER 112 OF 169 CA COPYRIGHT 2006 ACS on STN
AN 83:184548 CA
TI **Computer**-controlled **measurement** of thermal **conductivities** of aqueous
    salt **solutions**
AU White, W. R.; Brunson, R. J.; Bearman, R. J.; Lindenbaum, S.
CS Dep. Chem., Univ. Kansas, Lawrence, KS, USA
SO Journal of Solution Chemistry (1975), 4(7), 557-70
AB A **computer**-controlled method to **measure liq**. thermal **conductivities** is
    described, and data are presented for aq. electrolyte **solns**. The
    relative thermal conductivities of NaCl and NaI **solns**. agree well with
    previously published results. The effect of **temp**. on the thermal cond.
    was investigated. At 23-67°, the relative thermal cond. was invariant
    with **temp**. within the exptl. error (less than 1%). For a given **concn**.
    of 1-1 electrolyte, the relative thermal cond. varied linearly with the
    mol. wt. of the solute.

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